UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

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Apparatus and methodology for a write hub that supports high speed and low speed data rates

[0063]Upon the arrival of a packet, the write hub will eventually receive (at the WPTR interface 715) a fresh "**head" pointer that defines** the memory address where the packet should first begin to be written into the memory banks. Note that arriving packets (or segments thereof) are temporarily enqueued within the Rx queue structure 703 observed in FIG. 7 (which also corresponds to the Rx queue structure 203 observed in FIG. 3). Referring briefly back to FIG. 3, note that the initial directive to send a fresh head pointer to the write hub 305 may be a signal, command or other communicative technique that exists between the request manager 306 and the pointer manager 314. That is, for example, upon recognition of a newly arriving packet, the request manager 306 may send some form of communication to the pointer manager 314 that the pointer manager interprets as a command to send a fresh head pointer to the write hub 305. For simplicity, such communicative capabilities are not shown in FIG. 3.

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Apparatus and method for controlling digital data processing system employing multiple processors

The control block 49 also includes a queue link pointer 52, which is the first field of the control block. Each station has an associated work queue 58 depicted in FIG. 3. The work queue 58 stores control blocks that are processed by the station in the order in which they are stored in the queue. In one specific embodiment, the work queue is located in control memory 22 and is **defined** by (a) a **head pointer** 60 which points to, or contains the address of the location in control memory 22 containing, the first control block in the station's work queue 58, and (b) a tail pointer 61 that points to, or contains the address of the location in control memory 22 containing, the last control block in the work queue 58. As depicted in FIG. 3, the queue link pointer 52 of each control block in the work queue points to the next control block in the queue, thereby identifying the control blocks forming the queue.